

AFT Assembly ONLY
75963

U/R

Work Order ID 75963

November-02-11 10:42:10 AM

Page 1

Item ID: D3391-025 Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Aft Tube Assembly
Start Date: 02/11/2011 Start Qty: 1.00 *1* Cust Item ID:
Required Date: 16/11/2011 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: M.L.J Date: 11/11/02 Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D3391	Rev H U/R/ DEO

100 0.00

100 MORI SEIKI CNC LATHE LARGE

Mori Seiki Memo 0.00

Mori Seiki CNC Lathe Large Turn as per Folio FA599 Rev: I & Dwg D3391 Rev: I

scribe batch # on fwd end at 90 degree

110 0.00

110 QC2- Inspect parts off machine FAI/FAIB

QC Memo 0.00

Quality Control

111 0.00

111 QC8- Inspect parts - second check

QC Memo 0.00

Quality Control

1 Ø
M.M.L 11/11/14
1 Ø
M.M.L 11/11/14
1 Ø
R 11.11.21

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

75963

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N900040100

Setup Start *NS1*

Stop *NS2*

1

Cust Item ID:

1

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run Start *NR1*

Stop *NR2*

[illegible]

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Item ID: D3391-025

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Aft Tube Assembly

Start Date: 02/11/2011 Start Qty: 1.00

1

Cust Item ID:

Required Date: 16/11/2011 Req'd Qty: 1.00

1

Customer:

Reference:

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Run Start *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150	Skidtubes	0.00							
150	Memo	0.00							
Skidtubes	1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803								

25 11-4-22 (x1)

160	BENDING MACHINE - SKIDTUBES	0.00							
160	Memo	0.00							
CNC Bend 1	Form as per Dwg D3391 Using Bend Prog 3391025								
CNC Delta 100 Bender									

25 11-11-22 (x1)

170	QC5- Inspect part completeness to step on W/O	0.00							
170	Memo	0.00							
QC									
Quality Control									

DP 11-11-22

W/O:		WORK ORDER CHANGES					
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Skidtubes	0.00							
180									
Skidtubes	Memo	0.00							
Skidtubes	1-Open Aft cap pilot hole to .208" as per Dwg D3391								
	2-Drill float bag holes using DT8809 as per Dwg D3391(Holes marked "A" Only.								
	3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig *****Do Not Open To Finished Size*****								
	4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.								
	5-Open wearplate holes to 0.250" and c'bore as per dwg D3391								
	6-Open up all wearshoe , wearplate to 0.297"and float bag holes to 0.328" as per Dwg D3391.								
	7-Deburr								

3 OK 11/11/23
 3 OK 11/11/24

11-12-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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November-02-11 10:42:10 AM

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run** **Start** ***NR1***
 QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop** ***NR2***

[illegible]

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240	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
-----	--	------	--	--	--	--	--	--	--

240

Powdercoat
Powder Coating

M 11/9/80

Memo

START TIME: *12:45*
 OVEN TEMPERATURE: *3200F*
 FINISH TIME: *1:15*

AFT SECTION ONLY

11/12/22

250	QC3- Inspect Part Finish	0.00							
-----	--------------------------	------	--	--	--	--	--	--	--

250

QC
Quality Control

Memo

11/12/22

260	HandFinishing	0.00							
-----	---------------	------	--	--	--	--	--	--	--

260

HandFinish
Hand Finishing

Memo

1-Install inserts as per Dwg D3391
 2-Install Aft Cap as per Dwg D3391
 A/R Sikaflex-241/-291 *M 11/9/43*
 Sikaflex expiry date: *12/01*

11/12/22

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270 *270* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00							
280 *280* Packaging Packaging	Identify as per dwg & Stock Location: _____ Memo	0.00 0.00							
290 *290* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00							

11/12/23
11/12-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

November-02-11 10:42:14 AM

Page 1

Work Order ID: 75963

75963

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 02/11/2011

Required Date: 16/11/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev B 06-02-07 ECN773 dwg rev. D EC
 IPP Rev:C 06-03-28 Update Manuf. Instructions JLM
 IPP rev D 07.03.20 revF dwg EC
 IPP rev E 07.11.07 rev G dwg ecn 1053p EC verified by: DD
 IPP Rev:F 07-11-13 ECN 1056 DD verified by: EC
 IPP Rev:G 08-09-10 revH as per dwg DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6014-090		Manufactured	No			100	Each	23.0000	1	1			

D6014-090

ALUMINUM EXTRUSION

**

Location

Loc Qty

Loc Code

LG

23

66179

23

D3670-4-200

Manufactured No

230

Each

128.0000

4

4

mm.l 11/11/09

D3670-4-200

SPACER

**

81

11-12-20

Location

Loc Qty

Loc Code

LG

36

71850

36

LG001

92

72851

92

xy

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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November-02-11 10:42:14 AM

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Work Order ID: 75963

75963

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 02/11/2011

Required Date: 16/11/2011

Start Qty: 1.00

Required Qty: 1.00

D2646

Manufactured No

270

Each

73.0000

1

1

D2646

Aft Cap

1373825 (x1) 11/12/22

Location

Loc Qty

Loc Code

FP002

56

73294

56

FP004

5

68280

5

FP006

5

62678

5

FP-4

3

70945

1

71070

2

fp5

4

71038

4

D3537-1

Manufactured No

270

Each

108.0000

1

1

D3537-1

Wearpad

1377436 (x1) 11/12/22

Location

Loc Qty

Loc Code

FP002

101

74436

70

74597

31

FP017

7

69817

5

70686

2

04095-049

11/12/22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Work Order ID: 75963

75963

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 02/11/2011

Required Date: 16/11/2011

Start Qty: 1.00

Required Qty: 1.00

D3537-7 Manufactured No

270 Each 9.0000 1 1

D3537-7

Wearpad

**

B77435(v1) M 11/12/11

D4095-047

P 11.12.11

Location

Loc Qty

Loc Code

FP

4

71689

4

FP017

5

71689

5

D3553-1 Manufactured No

270 Each 37.0000 1 1

D3553-1

Gasket

**

N/A

N/A P 11.12.11

Location

Loc Qty

Loc Code

FP013

37

56568

2

73155

35

D3553-3 Manufactured No

270 Each 22.0000 1 1

D3553-3

Gasket

**

N/A

N/A P 11.12.11

Location

Loc Qty

Loc Code

FP

20

31631

20

FP013

2

53480

2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Work Order ID: 75963

75963

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 02/11/2011

Required Date: 16/11/2011

Start Qty: 1.00

Required Qty: 1.00

D3672-1 Manufactured No

270 Each 696.0000 2 2

D3672-1

Phenolic Washer

**

21 11/12/22

Location

Loc Qty

Loc Code

FP-A

432

52505

0

66821

432

ST074

264

72229

264

x2

ALS4-1032-130

Purchased No

260 Each 2,279.000 14 14

AI S4-1032-130

Insert

ALS4-1032-130

**

x119530 (x14) 21 11/12/22

Location

Loc Qty

Loc Code

ST280

2000

119084

2000

ST281

279

117717

2

118237

12

118312

2

118386

263

ALS4-1032-225

Purchased No

270 Each 2,422.000 12 12

AI S4-1032-225

Insert

**

21 11/12/22

Location

Loc Qty

Loc Code

ST281

2422

108696

502

110768

62

118386

858

118966

1000

x12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Parent Item Name: Aft Tube Assembly

Start Date: 02/11/2011

Required Date: 16/11/2011

Start Qty: 1.00

Required Qty: 1.00

AN3C4A Purchased No

270 Each 2,385.000 6 6

AN3C4A

BOLT

**

21 11/12/22

Location

Loc Qty

Loc Code

ST350

2385

117313

2

117688

5

117872

22

118112

16

118451

2

118706

364

118838

974

119328

1000

X6

AN3C5A Purchased No

270 Each 1,131.000 4 4

AN3C5A

Bolt

**

11/19/24 (X4) 21 11/12/22

Location

Loc Qty

Loc Code

FP-A

7

115835

7

ST350

1124

116419

28

117343

17

117764

166

117872

2

118451

411

119127

500

AN960C10L NAS1149C0332 Purchased No

270 Each 0.0000 10 10

***AN960C10I ***

washer

**

11/19/23 6 (X10) 21 11/12/22

W/O:		WORK ORDER CHANGES					
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DART AEROSPACE LTD		Work Order: 75963
Description: Float Skidtube (412)		Part Number: D3391-3
Inspection Dwg: D3391	Rev: H	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

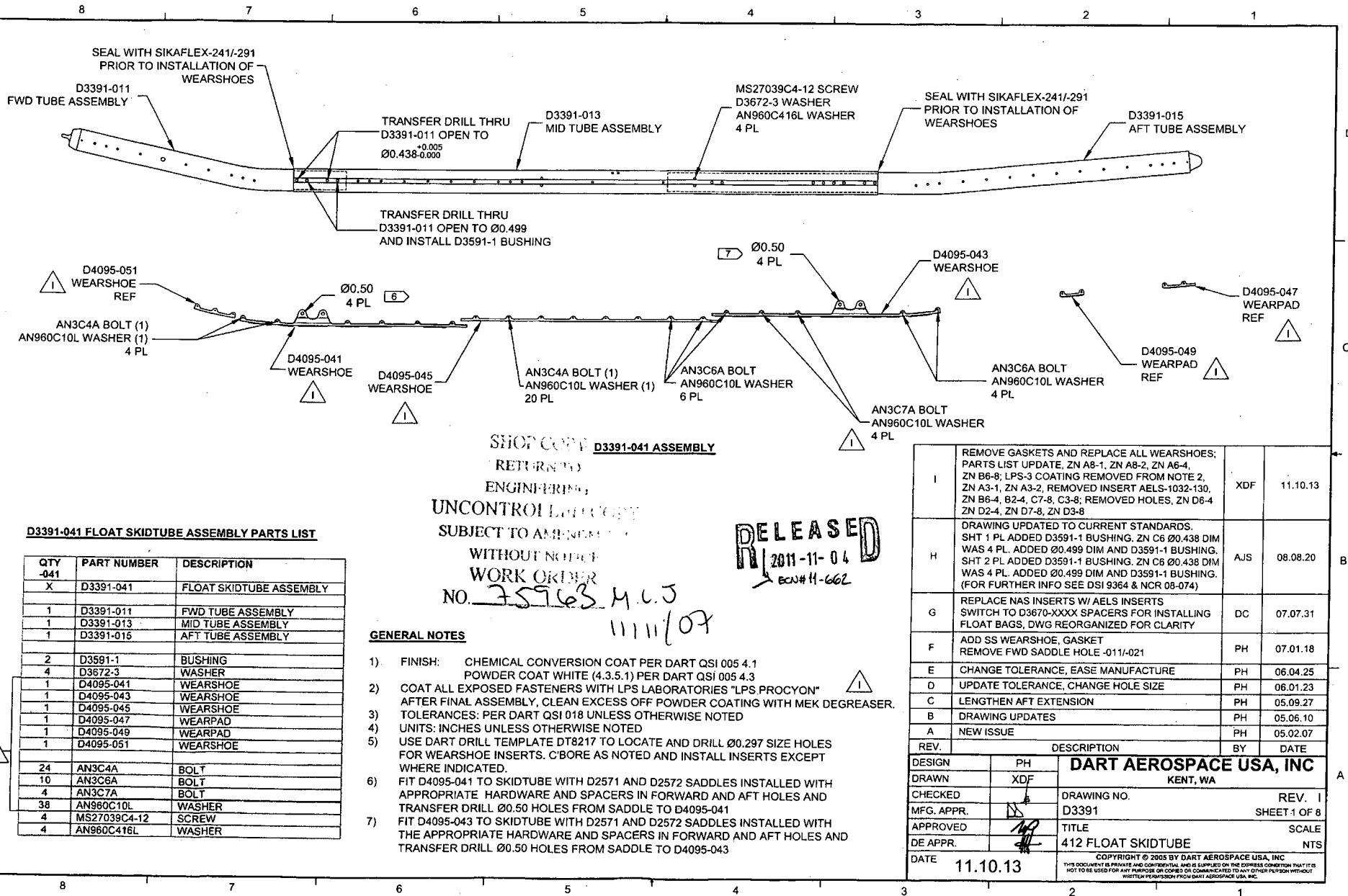
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
14.000	+/-0.010	14.00	✓		tape	mm L-02
3.500	+/-0.010	3.500	✓		vern	cnc-08
88.93	+/-0.030	88.900	✓		tape	mm L-02
Ø3.200	+/-0.010	3.202	✓		vern	cnc-08
88.93	+/-0.030	88.900	✓		tape	mm L-02
Ø3.750	+/-0.010	3.750	✓		vern	cnc-08
30° x 160° chamfer	+/-0.010	30° x 160	✓		ll	

Measured by: mm L	Date: 11/11/10
Audited by: RQ	Date: 11-11-21

HAAS Section						
1.526	+0.000/-0.030	1.508	✓		Vern	BF 06
7.500	+/-0.010	7.500	✓			
27.750	+/-0.010	27.750	✓			
31.750	+/-0.010	31.750	✓			
35.250	+/-0.010	35.250	✓			
3.300	+/-0.010	3.305	✓			
0.200	+/-0.010	.200	✓			
3.520	+/-0.010	3.525	✓			
0.687	+0.010/-0.000	.690	✓			
R0.062	+/-0.010	.062	✓			
Ø0.484	+0.005/-0.001	.484	✓			

Measured by: BC	Date: 11/11/10
Audited by: RQ	Date: 11-11-21

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	
F	09.04.27	Dimensions updated per Rev H and NCR09-028	KJ/JLM	
G	09.11.16	Dimension 0.200 removed	KJ	
H	11.06.21	Dimension 44.995 removed	KJ	



W/O:		WORK ORDER CHANGES					
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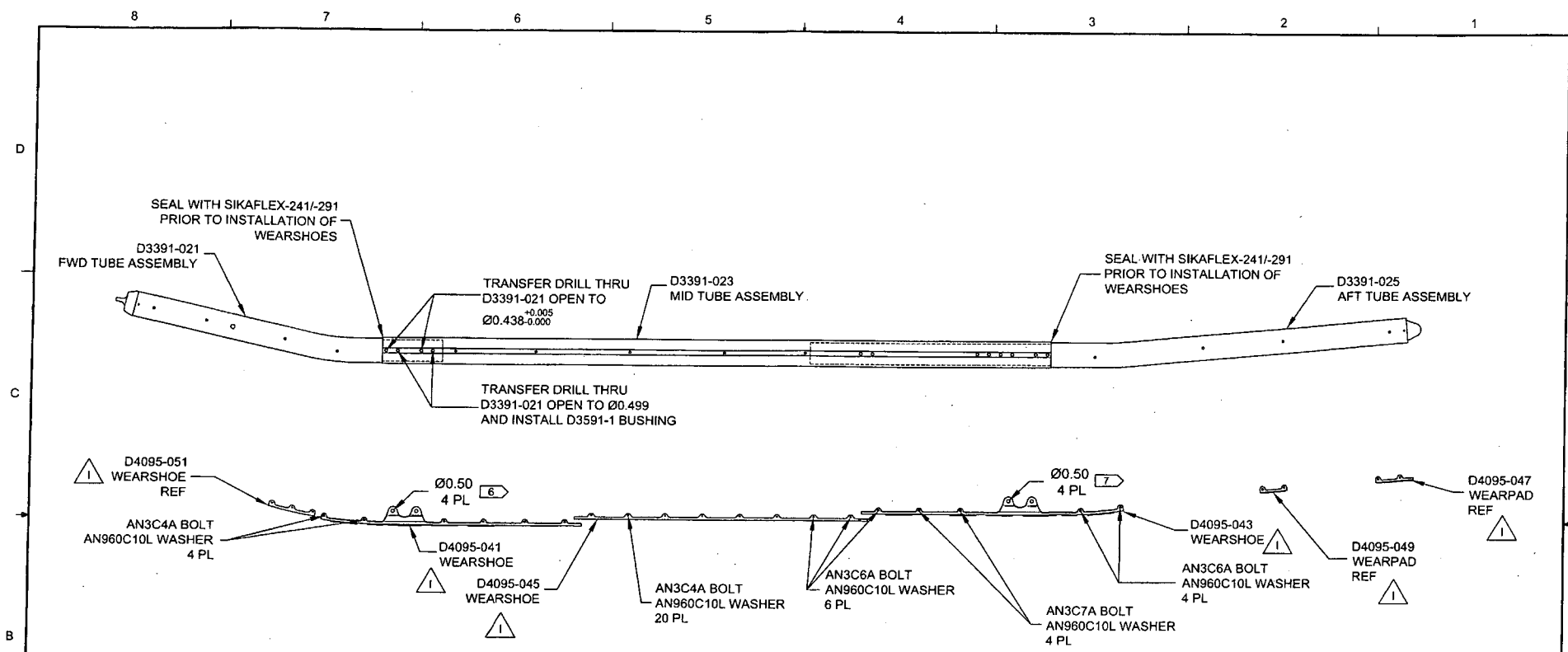
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D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
2	D3391-1	BUSHING
1	D4095-041	WEARSHOE
1	D4095-043	WEARSHOE
1	D4095-045	WEARSHOE
1	D4095-047	WEARPAD
1	D4095-049	WEARPAD
1	D4095-051	WEARSHOE
24	AN3C4A	BOLT
10	AN3C6A	BOLT
4	AN3C7A	BOLT
38	AN960C10L	WASHER

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON"
AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES
FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT
WHERE INDICATED.
- 6) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH
APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND
TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
- 7) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH
THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND
TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

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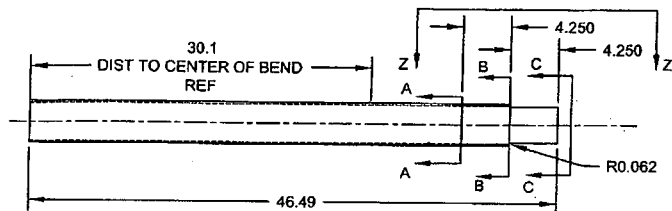
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

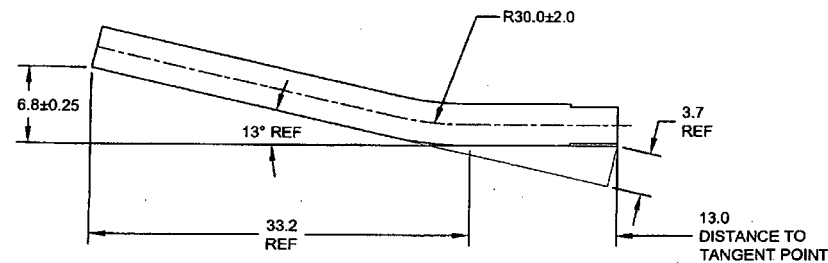
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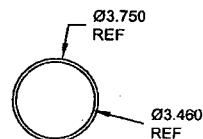
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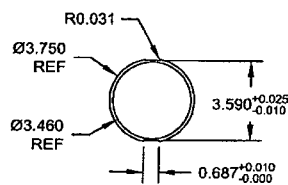
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



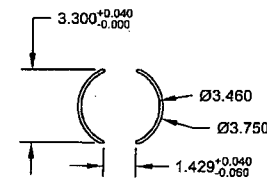
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



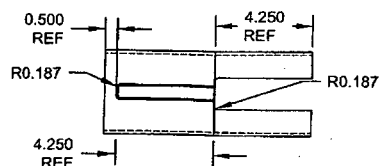
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X



VIEW Z-Z
SCALE 2X

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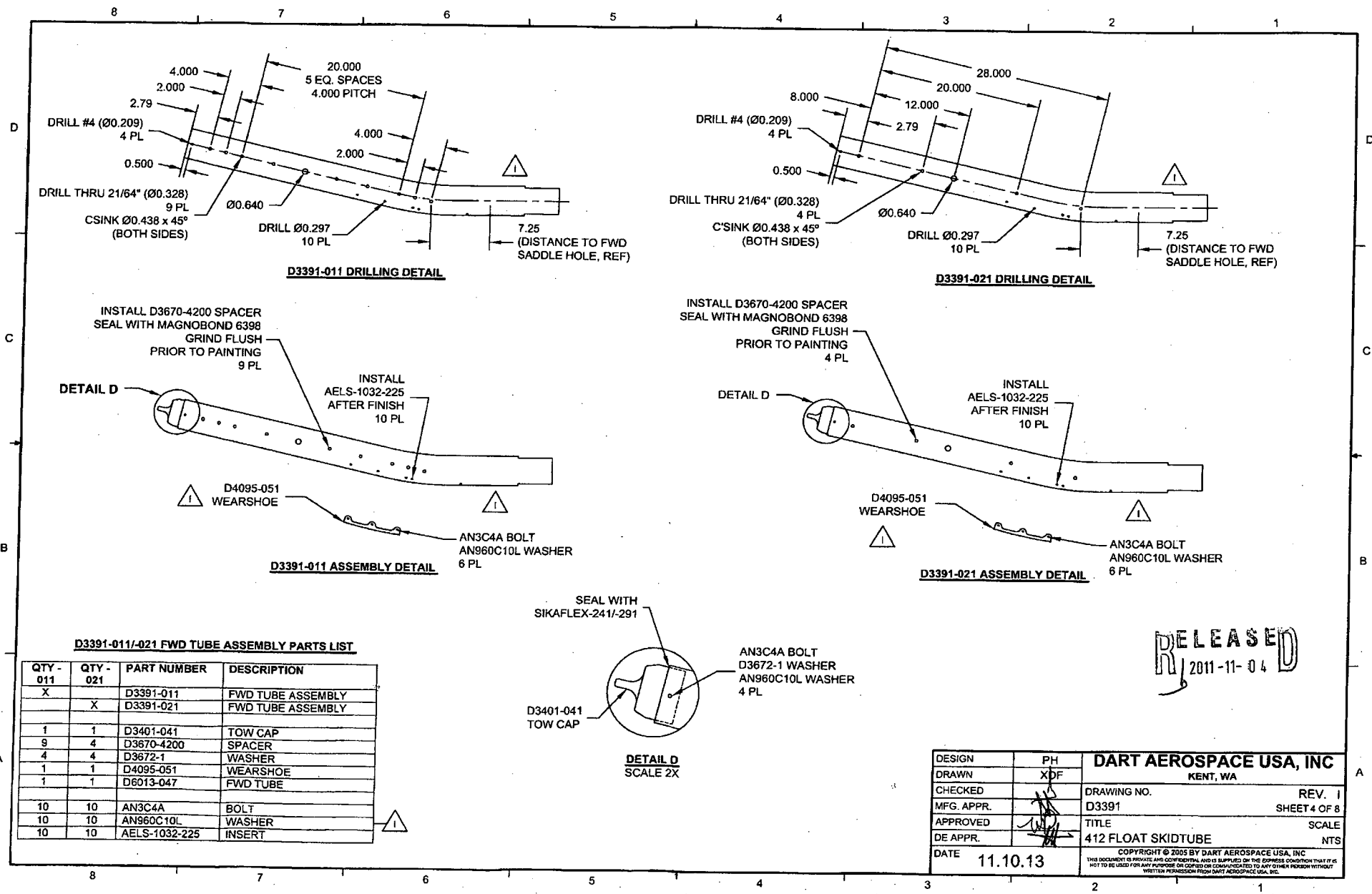
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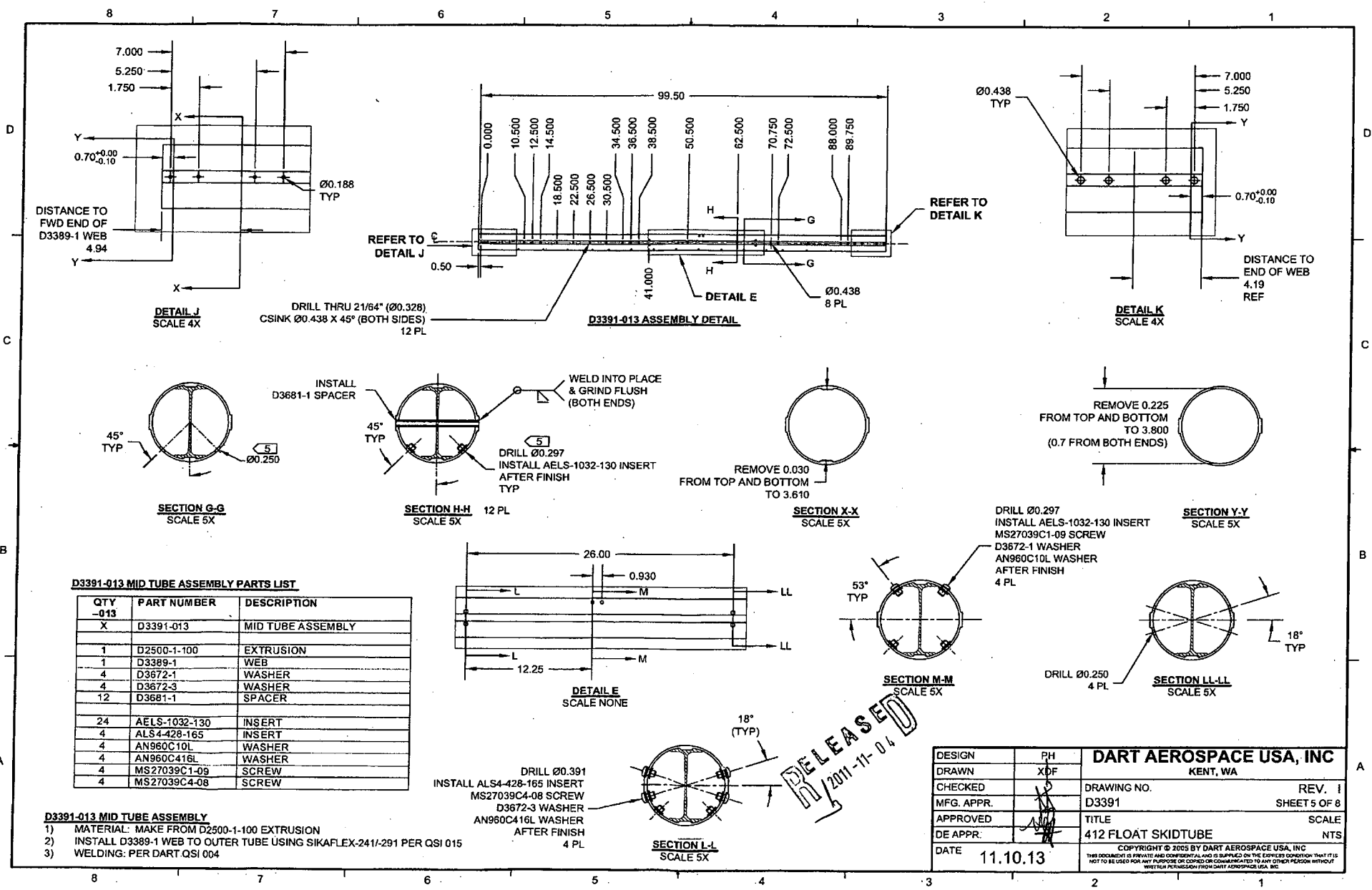
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D3391-013 MID TUBE ASSEMBLY PARTS LIST

QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW

D3391-013 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004

DRILL Ø0.391
INSTALL ALS4-428-165 INSERT
MS27039C4-08 SCREW
D3672-3 WASHER
AN960C416L WASHER
AFTER FINISH
4 PL

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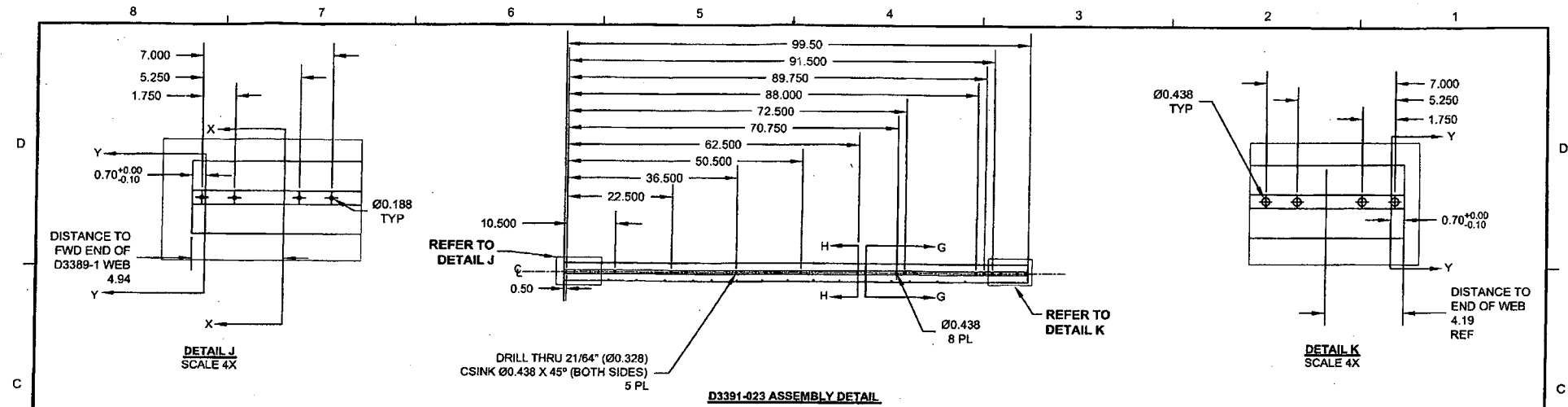
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

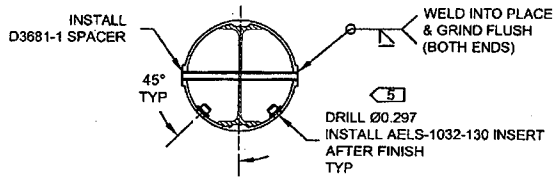
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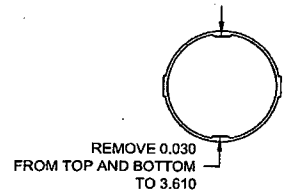
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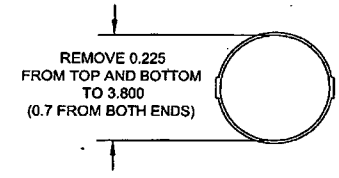
SECTION G-G
SCALE 5X



SECTION H-H
SCALE 5X



SECTION X-X
SCALE 5X



SECTION Y-Y
SCALE 5X

D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004

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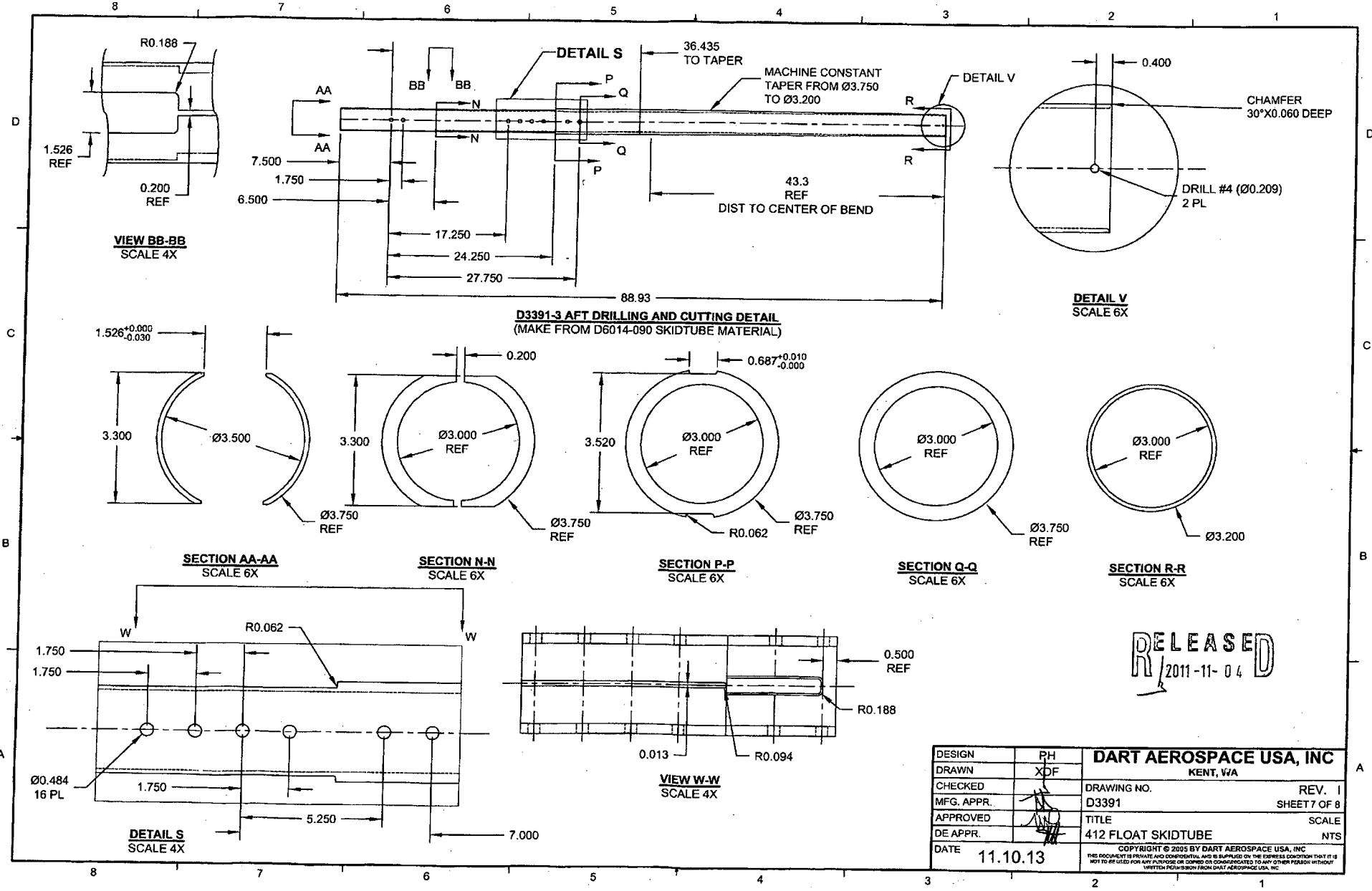
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D3391-015 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)

INSTALL D3670-4200 SPACER
SEAL WITH MAGNOBOND 6398
GRIND FLUSH
PRIOR TO PAINTING
14 PL

D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

D3391-015-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D2646	AFT CAP
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
1	1	D4095-049	WEARPAD
1	1	D4095-047	WEARPAD
1	1	D6014-090	AFT TUBE
14	14	AELS-1032-130	INSERT
8	8	AELS-1032-225	INSERT
4	4	ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER

**CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED**

HOLES MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	8	8	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)

INSTALL D3670-4200 SPACER
SEAL WITH MAGNOBOND 6398
GRIND FLUSH
PRIOR TO PAINTING
4 PL

D3391-025 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

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KENT, WA

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